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Rock Island Arsenal
Artillery Ammunition Assembling Plant
(Shop L, Building 250)
Gillespie Avenue between Ramsay Street
and South Avenue
Rock Island
Rock Island County
Illinois

HAER No. IL-20UU

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D.C. 20013-7127

HAER
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HISTORIC AMERICAN ENGINEERING RECORD

ROCK ISLAND ARSENAL
ARTILLERY AMMUNITION ASSEMBLING PLANT
(Shop L, Building 250)
HAER No. IL-20U

Location:	Gillespie Avenue Beteen Ramsey Street and South Avenue, Rock Island Arsenal, Rock Island, Rock Island County, Illinois UTM: 15.704620.4598600 Quad: Davenport East
Date of Construction:	1917-1918
Present Owner and Occupant:	U.S. Army
Present Use:	Machine shop
Significance:	Situated in a manufacturing area southwest of the Greek Revival stone shops on Rodman Avenue, the Artillery Ammunition Assembling Plant was constructed in 1917-1918 to load howitzer shells. The building's Gothic Revival design provided an architectural model for several neighboring, associated structures completed during the same period. Part of the Rock Island Arsenal National Register Historic District, the building embodies an equal concern for utilitarian and aesthetic considerations that became increasingly rare during subsequent wartime construction programs.
Historian:	Jeffrey A. Hess, February 1985
Architectural Historian:	David Arbogast, February 1985

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: The building site was selected in February 1917 (Burr to Chief of Ordnance, February 2, 1917; Babbit to Burr, February 12, 1917). The architect's initial plans were submitted to the arsenal command on April 18, 1917, and approved by the War Department two days later (Burr to Chief of Ordnance April 18, 1917; Crozier to Burr, April 20, 1917). Construction activity commenced in April 1917 (War's Greatest Workshop, p. 26). At the bottom of the east end of the north elevation the date, "1917," is cast into the concrete. The building was partially occupied for production on February 9, 1918, and it was completed later that same year (War's Greatest Workshop, p. 26).

2. Architect: Westinghouse-Church-Kerr Company of New York (Burr to Chief of Ordnance, April 18, 1917)

3. Original and subsequent owners: U.S. Army.

4. Builder, contractor, supplier: Westinghouse-Church-Kerr Company of New York served as general contractor on a cost plus 10 per cent basis (Completion Report, p. 2).

5. Original plans and construction: The Rock Island Arsenal Historical Office has a photograph of a "perspective view of proposed building," which was submitted by Westinghouse-Church-Kerr Company to the arsenal command on April 18, 1917, and approved by the War Department two days later (see HAER Photo No. IL-20U-12). The building was constructed as planned. This is documented by a 1918 photograph of the east and north facades in the picture collection of the Rock Island Arsenal Historical Office (see HAER Photo No. IL-20U-13), and by a 1918 photograph of the west and north facades in the official Completion Report (n.p.). There are no early photographs of the building's south facade. But "a progress map" of the building's construction, revised to January 18, 1919, shows that the south elevation was originally connected by two passageways to the north facade of Building 251, as shown in the 1917 "perspective view" (Completion Report, n.p.).

   The building's present configuration conforms to the original construction, with the following exceptions: the courtyard has been infilled with three adjoining, two-story, steel-framed, masonry structures with monitors; an overhead concrete passageway connecting the west half of the building's south facade to the north facade of Building 251 has been demolished.

6. Alterations and additions: In 1920, the courtyard was infilled with three adjoining, two-story, steel-framed, masonry structures with monitors (Real Property Card for Building 250, "History Artillery Vehicle Department," n.p.). The Rock Island Arsenal Engineering Plans and Services Division has the following plan for this work: "Typical Details Courtyard of Shop 'L' with Anchor Ohio Bldgs," January 20, 1920, RIA B250-B55, D400940.

   At an undetermined date, the overhead concrete passageway connecting the west half of the building's south facade to the north facade of Building 251 was demolished.

B. Historical Context:

On February 2, 1917, the commandant of Rock Island Arsenal, Colonel George W. Burr, informed the War Department in Washington that he had selected a tentative location, about two blocks southwest of the Greek Revival stone shops on Rodman Avenue, for a proposed artillery ammunition assembling complex, which included a large Assembling Plant, a smaller TNT Building (see HAER No. IL-20V), and a still smaller Incinerator Building (HAER No. IL-20Y). Burr explained that the site "will place the main buildings as conveniently as possible for general purposes and at the same time will isolate as much as possible the smaller buildings which are to contain explosives or are to be devoted to the more hazardous operations" (Burr to Chief of Ordnance, February 2, 1917). On February 12, 1917, the War Department wrote Burr that "the general scheme as outlined in preceding letter. . . is approved" (Babbit to Burr, February 12, 1917).

In selecting an architectural design for the complex, Burr at first considered a Greek Revival motif that would complement the major manufacturing shops on Rodman Avenue. But as he informed the War Department on April 18, 1917:

> "The architects tell me that it is extremely difficult to follow the existing building types of the Arsenal in modern buildings in which three-quarters of the wall surface is given over to window space. This construction is necessary in the [Artillery Ammunition Assembling Plant] because of the lighting requirements and it is also most desirable in a plant handling explosives in order that the force of a minor explosion may blow out the windows without damage to the walls of the structure" (Burr to Chief of Ordnance, April 18, 1917).

To satisfy both safety and aesthetic considerations, Burr selected a Gothic Revival style that incorporated large blocks of industrial steel sash in the facades while embellishing the roofline with

crenelated detailing. Prepared by Westinghouse-Church-Kerr Company of New York, the design was approved by the War Department on April 20, 1917.

With Westinghouse-Church-Kerr also serving as general contractor, construction of the Artillery Ammunition Assembling Plant began that same April, and the building was partially occupied for production on February 9, 1917. During the remaining nine months of World War I, the building assembled approximately 167,000, 155mm howitzer shells (Nothstein and Stephens, p. 259). According to plans on file at the Rock Island Arsenal Engineering Plans and Services Division, the operation used standard technology. In a small TNT Building (see HAER No. Il-20V) connected by covered passageways to the south facade of the Artillery Ammunition Assembling Plant, TNT was melted in steam-heated kettles, and hand-poured into shell bodies. After cooling, the shell bodies were sent to a boring machine, which drilled a small cylindrical hole into the hardened TNT charge to prepare it for the insertion of a detonator. The shell bodies were then delivered through the covered passageways to the Artillery Ammunition Assembling plant, where they were assembled with detonators, primers and fuzes -- components that were also manufactured in the building.

The Artillery Ammunition Assembling Plant remained in shell production until 1920, when it was expanded with a courtyard addition and re-outfitted as a heavy machine shop for a variety of ordnance components, with a special emphasis on artillery and combat vehicles. Except for a brief period in the early 1930s, when it was placed in standby condition, the building has been in continuous use as a machine shop to the present time ("History Artillery Vehicle Department," n.p.; Interview with Bouilly; see HAER Photo No. IL-20U-13). At the time of its construction, the building was alternately designated as "Shop L" (see HAER No. IL-20U-12). It has been designated as "Building 250" at least since World War 11 ("History Artillery Vehicle Department," n.p.; for additional documentation, see HAER No. IL-20).

Prepared by: Jeffrey A. Hess
MacDonald and Mack Partnership
February 1985

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: The building is an extremely large manufacturing building exbibiting s crenellated form of the late Gothic Revival style related to the popular Collegiate Gothic of the period, which was normally used for all types of educational buildings. Its application here and in Buildings 251, 133, 139, snd 140 is one indication of the universality and adaptability of the style.

2. Condition of fsbric: The building is not well-maintained and is showing its age, with peeling paint and some loss of concrete on the exterior.

B. Description of Exterior:

1. Overall dimenaions: The building is a large, rectangular block with an interior courtyard containing additional building extensions and an addition. Overall dimensions are 365' (18 bays) x 401' (20 bays). The building is three stories tall with decreasing floor areas as it risea from its bssement level.

2. Foundations: Poured, reinforced concrete.

3. Walls: Poured, reinforced concrete frame (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-3, IL-20U-4, IL-20U-5, IL-20U-6, and IL-20U-7). Colossal concrete buttresses (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-3, IL-20U-4, IL-20U-5, IL-20U-6, and IL-20U-7) rising from the ground to the parapet wall divide the elevations into a regular bsy system. Each bay is connected between the buttresses and below the parapet wall by a very shallow segmental arch (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-3, IL-20U-4, IL-20U-5, and IL-20U-7). The psrspet wall (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-3, IL-20U-4, IL-20U-5, and IL-20U-7) has a projecting concrete coping which is indented at regular intervals to give the building a crenellated appearance. The corners are given emphasis by a heightened parapet wall with the bays above the primary entrances at these corners having a raised parapet wall segment with a set of three indented machicolations. At tbe bottom of the east end of the north elevation the date, "1917" is cast into the concrete. The exterior is psinted white.

4. Structural systems: Reinforced concrete frame walls with round interior columns (HAER Photo Nos. IL-20U-8 and IL-20U-10) 20' on-center with spresd capitals in all sections except the north basement, whicb has square concrete piers. Floor and roof syatems are reinforced concrete.

5. Openings:

   a. Doorways: Principal doorways (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-6, and IL-20U-7) are typically located in each exterior face of the corner blocks. Several retain original pairs of doors in their shallow, segmental-arched openinga, although modern overhead doors have been installed in most of the doorways. One doorway ia open, forming a tunnel entrance to an interior courtyard. Original door leaves (HAER Photo No. IL-20U-11) have nine lighta over a vertical (diagonal on the interior face), beaded, tongue-and-groove, board panel. Adjacent to the principal doorways are smaller personnel doors (HAER Photo No. IL-20U-11) having four lights over a vertical (diagonal on the interior face), beaded, tongue-and-groove, board panel with a four-light, fixed, transom sash above. Secondary doorways (HAER Photo Nos. IL-20U-1, IL-20U-4, IL-20U-5) are located at irregular intervals between the corner blocks. A few retain original pairs of doors. These door leaves have six lights over a vertical (diagonal on the interior face), beaded, tongue-and-groove, board panel with a six-light, fixed, transom sash above. A few of the window walls have doorways inserted into them at ground level. These typically contain thin steel doors with nine lights over two panels. When closed, they blend with the window sash.

   b. Windows: Typical bays (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-3, IL-20U-4, IL-20U-5, IL-20U-6, and IL-20U-7) contain 66-light, fixed, industrial steel sash with pairs of six-light, pivoting sash in their centers flanked by pairs of six-light, pivoting sash on each side.

6. Roof:

   a. Shape, covering: The roofs are flat and are covered with tar and gravel.

   b. Cornice, eaves: The roof is aurrounded by a parapet wall (HAER Photo Nos. IL-20U-1, IL-20U-2, IL-20U-3, IL-20U-4, IL-20U-5, and IL-20U-7) and has an internal water drainage syatem tied to an underground drainage system.

7. Ancillary structures: There is an addition located in the courtyard north of the south block at the basement level. It is one story in height with a flat roof having three long monitora (HAER Photo No. IL-20U-9) paralleling each other from east to west. The roof is supported by flat trusses resting on steel H-columns. Most of the wall surfaces are formed by the adjacent concrete frame of the main building from which the window walls have been

removed. Exposed wall sections at the north and above the basement roof level are brick. Where exposed on the interior, these brick walls are painted.

C. Description of Interior:

1. Floor plans: The building is an industrial factory and contains few partitions. They are primarily related to some areas of offices, stairways, elevators, and restrooms. Restrooms are typically clustered with stairs, janitor closets, locker rooms, and freight elevators, with additional women's restrooms built on added mezzanine levels.

   a. Basement: Including the courtyard addition, the basement covers virtually the entire area of the building, except a small rectangular courtyard (HAER Photo No. IL-20U-7) south of the north block. The north (front) portion is used for storage and the piers are connected east to west by concrete partition walls. The remainder of the basement is devoted to manufacturing.

   b. First floor: The first floor has an irregular plan. It covers the north side of the courtyard and extends partially south at the west end. It fully covers the east side of the courtyard and has a short wing extending into the courtyard near the north end of the courtyard elevation. It then extends partially west along the south side of the courtyard. In the southwest corner of the plan is an isolated room at the first floor level communicating by stairs with the basement below. The first floor is used for manufacturing, except for the isolated room, which is used for recreation.

   c. Second floor: The second floor has the same plan as the first floor, but lacks the isolated room at the southwest corner. The second floor is used for storage, except for the portion along the south side, which is an active shop area.

   d. Third Floor: The third floor covers the north side of the courtyard and has short wings extending south at each end. It is wholly used for storage.

2. Stairways: There are five major and three minor stairways serving the building, not including the short runs of wood stairs to the added mezzanine levels. Typical major stairs are U-plan steel with concrete-covered main and intermediate landings. They have molded wood handrails supported by square steel rods and square and rectangular steel newels at the end of each run of steps. The stairs in the northwest corner run from the first floor to the

roof. The stairs in the center of the north elevation run from the first through the third floors. The stairway south of the northeast corner runs from the basement to the roof. The stairway in the northeast corner of the courtyard extension runs from the basement through the second floor. The stairway west of the southeast corner runs from the first to the second floors. At the south end of the west wing of the first floor and at the west end of the south wing of the first floor are stairs down to the basement level, similar in construction to the major stairs. A straight-run flight, also similar in construction to the major stairs, ascends from the basement to the first-floor southwest corner room.

3. Flooring: Typical flooring is poured concrete (HAER Photo Nos. IL-20U-8, IL-20U-9, and IL-20U-11) with a sealer applied to it. The only exception is the southwest corner room of the first floor, which has a varnished wood floor.

4. Wall and ceiling finishes: Typical outer walls and columns (HAER Photo Nos. IL-20U-8 and IL-20U-10) are painted concrete. Typical interior partition walls are original, vertical, beaded, tongue-and-groove, board walls with pairs of six-light, fixed, wood sash (HAER Photo No. IL-20U-10) and wire cage. Between the north piers of the basement running east to west is a set of three painted concrete walls. The basement also has one, small stainless steel room. Both the basement and first floor have a few demountable steel partitions. There are painted brick walls in the basement adjacent to the addition. All ceilings (HAER Photo No. IL-20U-8) are painted concrete.

5. Openings:

   a. Doorways and doors: A large number of original doorways survive. At the stair enclosures are plain steel frames containing five-panel, steel doors imitating wood doors. Shop office walls retain original wood doors with six lights over a vertical, beaded, tongue-and-groove board panel. There are a few large doorways. Original doors in these doorways appear to be two types. In the larger type of doorway are pairs of hinged doors with sixteen lights over a vertical, beaded , tongue-and-groove board panel with an x-brace. The smaller type of doorway contains a pair of sliding doors with twelve lights over a vertical, beaded, tongue-and-groove, board panel.

   b. Windows: Window openings (HAER Photo No. IL-20U-9) are concrete with no casings or other trim.

6. Hardware: Original hardware survives on all original doors (HAER

Photo No. IL-20U-11). Hinges include knuckle hinges on the pedestrian doors and large, strap hinges on the large doors. The strap hinges range from utilitarian to decorative. Knob sets are typically round, utilitarian brass knobs and rectangular plates. The large doors have plain pulls and latchware. The window sash retain original steel opening mechanisms.

7. Mechsnicsl equipment:

   a. Heating, air conditioning, ventilation: The building is heated by steam radiators. There is no mechanical air conditioning or ventilation system other than those required for small portions of manufacturing and testing.

   b. Lighting: Artificial illumination is by means of fluorescent electrical fixtures (HAER Photo Nos. IL-20U-8 and IL-20U-10) supplemented by a few incandescent fixtures, which may be the only remnants of the original artificial lighting system.

   c. Plumbing: Original, utilitarian, steel toilet stalls survive in the men's restrooms.

   d. Elevators: All four original freight elevators survive in an upgraded and modernized condition. The small elevator in the southwest corner running between the basement and the first floor room also appears to be original, slthough modified.

   e. Machinery: No original machinery is known to survive in the building. For security reasons, no information was available for existing mschinery.

D. Site:

1. General setting and orientation: The building faces Kingsbury Avenue to the north and fills the block between Flagler Street to the west and Gillespie Avenue to the east. To the south is Building 251, a motor repsir shop, which is connected to Building 250 with an overhesd enclosed, concrete bridge in a mstching late Gothic Revival style. To its east is Building 254, a storage structure. Across Flsgler Street to the west are, from north to south, Buildings 230, a weld shop, 231, a shop office, and 240, a fabrication shop. Across Gillespie Avenue to the east are, from north to south, Buildings 133, s roads and grounds building and 168, s central heating plant. Across Kingsbury Avenue to the north is a paved parking lot. A railroad spur runs along the west elevstion of the building and paved service drives surround the building. Small guard houses are sited northeast and southeast of the building. In the surviving courtyard area is Building 252, a tiny oil

shed. The site slopes to the south, fully exposing the south basement elevation.

Prepared by: David Arbogast
Architectural Conservator
February 1985

PART III. SOURCES OF INFORMATION

A. Original Architectural Drawings:

The Rock Island Arsenal Historical Office has a photograph of a "perspective view of the proposed building," which was prepared by Westinghouse-Church-Kerr Company and submitted to the arsenal command on April 18, 1917 (see HAER Photo No. IL-20U-12). The drawing shows the major details of the original construction. In addition, the Rock Island Arsenal Engineering Plans and Services Division has the following original drawings:

Westinghouse-Church-Kerr Company, "Artillery Ammunition Assembling Plant / Main Bldg. -- East Section / Exterior Details," September 14, 1917, RIA B250-B41. Shows original construction.

Westinghouse-Church-Kerr Company, "Artillery Ammunition Assembling Plant / Main Bldg. -- West Section / Floor Plan," September 26, 1917, No. 2183-G-27, RIA B250-B42, D40093. Shows original construction.

"Typical Details Courtyard of Shop 'L' with Ancor Ohio Bldgs.," January 20, 1920, RIA B250-B55. D40094D. Shows details of courtyard addition.

B. Early Views:

The picture collection of the Rock Island Arsenal Historical Office has a 1918 photograph documenting original construction of the north and east facades; view is captioned, "155-39839 May 2, 1918 / 'L' Shop" (see HAER Photo No. IL-20U-13). The same collection also has an interior view showing machining operations during World War II; this photograph is captioned in part, "861-13484 June 13, 1945 / Gun, 155-MM, M2. Breech Mechanism. Shop L, Building 250. Center Craneway."

C. Interviews:

Robert Bouilly, Senior Historian, Rock Island Arsenal Historical Office, conducted by Jeffrey A. Hess, May 30, 1984. Discussed past and present uses of building.

D. Bibliography:

1. Primary and unpublished sources:

Babbit, E. B. to George W. Burr, February 12, 1917. Rock Island Arsenal Historical Office. Letter approving selection of building site.
Burr, George W. to Chief of Ordnance, February 2, 1917. Rock Island Arsenal Historical Office. Letter explaining selection of site and requesting approval of same.

Burr, George W. to Chief of Ordnance, April 18, 1917. Rock Island Arsenal Historical Office. Letter explaining selection of Gothic Revival architectural style and requesting approval of same.

Crozier to George W. Burr, April 20, 1917. Rock Island Arsenal Historical Office. Letter approving Gothic Revival design.

Hess, Jeffrey A., and Mack, Robert C. "Historic Properties Report Rock Island Arsenal, Rock Island, Illinois". Prepared by MacDonald and Mack Partnership, and Building Technology Incorporated for the Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior, 1985. The report, with accompanying inventory cards, is filed as field records in the Prints and Photographs Division, Library of Congress, under HAER No. IL-20. These materials provide a detailed architectural, historical, and technological overview of the arsenal.

"History Artillery Vehicle Department, 1939-1942," vol. 2. Ca. 1942. Rock Island Arsenal Historical Office. Discusses historical uses of buildings.

Real Property Cards. Rock Island Arsenal Engineering Plans and Services Division. Briefly describes building's structural characteristics and maintenance history.

2. Secondary and published sources:

Completion Report Govering All Construction Projects Accomplished Under Supervision of the Construction Division, U.S. Army at Rock Island Arsenal. N. pl.: n. pub., 1922. Rock Island Arsenal Historical Office. Describes construction of original building and 1920 addition; also contains photographs documenting original construction.

Nothstein, Iro O. and Stepehens, Clifford W. A History of Rock Island and Rock Island Arsenal from Earliest Times to 1954. Rock Island Arsenal, 1965. 3 vols. Discusses artillery shell production during World War I.

War's Greatest Workshop Rock Island Arsenal. N. pl.: Arsenal Publishing Co. of the Tri-Cities, 1922. Rock Island Arsenal Historical Office. Describes planning and construction of the original building and 1920 addition.

PART IV. PROJECT INFORMATION

This project was part of a program initiated through a memorandum of agreement between the National Park Service and the U.S. Department of the Army. Stanley J. Fried, Chief, Real Estate Branch of Heaquarters DARCOM, and Dr. Robert J. Kapsch, Chief of the Historic American Buildings Survey/Historic American Engineering Record, were program directors. Sally Kress Tompkins of HABS/HAER was program manager, and Robie S. Lange of HABS/HAER was project manager. Building Technology Incorporated, Silver Spring, Maryland, under the direction of William A. Brenner, acted as primary contractor, and MacDonald and Mack Partnership, Minneapolis, was a major subcontractor. The project included a survey of historic properties at Rock Island Arsenal, as well as preparation of an historic properties report and HABS/HAER documentation for 38 buildings. The survey, report, and documentation were completed by Jeffrey A. Hess, historian, Minneapolis; Barbara E. Hightower, historian, Minneapolis; David Arbogast, architectural historian, Iowa City, Iowa; and Robert C. Mack, architect, Minneapolis. The photographs were taken by Robert A. Ryan, J Ceronie, and Bruce A. Harms of Dennett, Muessig, Ryan, and Associates, Ltd., Iowa City, Iowa. Drawings were produced by John Palmer Low, Minneapolis.